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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,597

12/21/2005

Yukio Miyairi

126413

6134

25944 7590 04/28/2009

OLIFF & BERRIDGE, PLC  
P.O. BOX 320850  
ALEXANDRIA, VA 22320-4850

EXAMINER

MAYEKAR, KISHOR

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

04/28/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/562,597	<b>Applicant(s)</b> MIYAIRI ET AL.	
	<b>Examiner</b> Kishor Mayekar	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/05, 02/06 &amp; 06/07</u> .                                | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: the continuing data on page 1 is missing.

Appropriate correction is required.

2. Claims 1 and 7 are objected to because of the following informalities: in claim 1, the recitation "a plasma producing means ...; and treating the substrates ..." is confusing as whether the phrase "treating the substrate" is derived from "a plasma producing means" or else; and in claim 7, the recitation "method treating" is grammatically incorrect. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dosaka

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et al. (US 2002/0034590 A1). Dosaka's invention is directed to a plasma reactor for treating exhaust gas and a method of determining abnormality in the plasma reactor. Dosaka discloses that the plasma reactor comprises the recited case body and plasma producing means (p. 45; and Figs. 1 and 2). Dosaka further discloses in Table 1, tests in Nos. 1 and 6, a condition where the changing of the frequency or voltage. Also, Dosaka discloses in Fig. 1 an AC power supply for applying an alternating current to the pair of electrodes is grounded. What is meant there is that one of the electrodes is being held at ground and the other electrode is being held at a high voltage when the AC power supply is connected to the pair of electrodes. And this also applies to the case when a pulse power supply is used for applying a pulse current to the pair of electrodes. The difference between Dosaka and the above claims is in the process limitation by the recitation "by switching ..., the substances to be treated in the exhaust gas can selectively be treated". The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the reference's teachings because it has been held on the intended use of a device that "apparatus claims cover what a device is, not what a device does", *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ 2d 1525. The same is applied to the subject matter of each of claims 2-4.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dosaka '590 as applied to claims 1-4 above, and further in view of Hemingway (US

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6,464,945 B1). Dosaka as applied further discloses that electrodes covered with a dielectric material in a plasma reactor and the combined use of an exhaust gas cleaning catalyst and a plasma reactor are known (p. 7). The difference between Dosaka as applied above and the instant claims are each of the recited limitations. Hemingway teaches in plasma reactor for treating exhaust gas each of the limitations recited in claims 5 and 6 (Figs. 5-7 and 1). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Dosaka's teachings' as shown by Hemingway because the selection of any of known equivalent arrangements of dielectric material would have been within the level of ordinary skill in the art and the provision of a catalyst downstream from the plasma reactor would further complete the conversion of NO<sub>x</sub>.

6. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dosaka '590 in view of Tamura et al. (US 6,558,637 B2). Dosaka is applied as above. The difference between Dosaka and the above claims is the provision of the recited switching. Tamura teaches in a plasma reactor for treating exhaust gas and method thereof the recited limitation (c. 6, l. 6-26 or c. 9, l. 6-17). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Dosaka's teachings' because this would result in treating a plurality of substances in the exhaust gas.

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As to the subject matter of each of claims 8-10, the selection of switching the value would have been within the level of ordinary skill in the art.

As to the subject matter of each of claims 11 and 12, Tamura teaches in c. 6, l. 6, l. 27-36.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dosaka '590 as applied to claims 7-12 above, and further in view of Hemingway '945, for the same reasons as stated in the paragraph #5 above.

### *Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information

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about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kishor Mayekar/  
Primary Examiner, Art Unit 1795